Orfom® MC 37 Collector

Version 2.2 Revision Date 2023-12-05

according to GB/T 16483 and GB/T 17519

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name	:	Orfom® MC 37 Collector
Material	:	1106090, 1119737, 1119735, 1119734, 1119733, 1119732, 1119711, 1108011, 1106092, 1106089, 1106091, 1105818
Use	:	Mineral Collector
Company	:	Chevron Phillips Chemical Company LP Mining Chemicals 10001 Six Pines Drive The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)
Belgium: 070 245 245 (24 hours/day, 7 days/week)
Bulgaria: +359 2 9154 233
Croatia: +3851 2348 342 (24 hours/day, 7 days/week)
Cyprus: 1401
Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402
Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212
Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Finland: 0800 147 111 09 471 977 (24 hours/day)
France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)
Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Greece: (0030) 2107793777 (24 hours/day, 7 days/week)
Hungary: +36-80-201-199 (24 hours/day, 7 days/week)
Iceland: 543 2222 (24 hours/day, 7 days/week)
Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)
Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Lithuania: +370 (85) 2362052
Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)
Malta: +356 2395 2000
The Netherlands: NVIC: +31 (0)88 755 8000
Norway: 22 59 13 00 (24 hours/day, 7 days/week)
Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Portugal: CIAV phone number: +351 800 250 250
Romania: +40213183606
Slovakia: +421 2 5477 4166
Slovenia: Phone number: 112
Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)
Sweden: 112 – ask for Poisons Information

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	SDS@CPChem.com
Website	:	www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
GHS Classification and Labeling: Follow GB 13690, GB 15258 and GB 30000.2 to GB 30000.29 (GHS 2011)

Emergency Overview

Danger

Physical state: liquid **Color**: Dark Brown **Odor**: Pungent

Hazards	:	Combustible liquid. May be harmful if swallowed. Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Classification

: Flammable liquids, Category 4
Acute toxicity, Category 5, Oral
Acute toxicity, Category 4, Inhalation
Skin corrosion/irritation, Category 2
Skin sensitization, Category 1
Carcinogenicity, Category 1B
Reproductive toxicity, Category 2
Specific target organ toxicity - repeated exposure, Category 2, Blood, Liver, thymus gland
Aspiration hazard, Category 1
Short-term (acute) aquatic hazard, Category 1
Long-term (chronic) aquatic hazard, Category 1

Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : H227: Combustible liquid.
H303: May be harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H332: Harmful if inhaled.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.
H373: May cause damage to organs (Blood, Liver, thymus gland) through prolonged or repeated exposure.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P260: Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P271: Use only outdoors or in a well-ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302+P352: IF ON SKIN: Wash with plenty of water.
P312: Call a POISON CENTER/doctor if you feel unwell.
P331: Do NOT induce vomiting.
P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention.
P362+P364: Take off contaminated clothing and wash it before reuse.
P370+P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391: Collect spillage.
Storage:
P403 + P235: Store in a well-ventilated place. Keep cool.
Disposal:
P501: Dispose of contents/ container to an approved waste disposal plant.

SECTION 3: Composition/information on ingredients

Molecular formula : Mixture

Chemical name	CAS-No. / EINECS-No.	Concentration [wt%]
Light Cycle Oil	64741-59-9	25 - 75
tert-Dodecanethiol	25103-58-6	25 - 75
Decant (clarified) Oils	64741-62-4	25 - 75
Naphthalene	91-20-3	0 - 4
Thiol synthesis by-products		0 - 2.5
Polynuclear Aromatics	130498-29-2	0 - 0.8

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point : >61°C (>142°F)

Autoignition temperature : 260°C (500°F)

Suitable extinguishing media : Carbon dioxide (CO2).

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection	:	Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers	:	No smoking. Keep in a well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Use	:	Mineral Collector

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

Chevron Phillips Chemical Company LP

Components	Basis	Value	Control parameters	Note
tert-Dodecanethiol	Manufacturer	TWA	0.1 ppm,	

CN

Components	Basis	Value	Control parameters	Note
Naphthalene	CN OEL	PC-TWA	50 mg/m3	G2B, Skin,
	CN OEL	PC-STEL	75 mg/m3	G2B, Skin,

G2B G2B - Possibly carcinogenic to humans
Skin Skin

Not applicable
CN

Substance name	CAS-No.	Control parameters	Sampling time	Update

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant protective clothing. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.

Hygiene measures : When using do not eat or drink. When using do not smoke.

Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state	:	liquid
Color	:	Dark Brown
Odor	:	Pungent

Safety data

Flash point	:	>61°C (>142°F)
Lower explosion limit	:	0.6 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	260°C (500°F)
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	Not applicable
Pour point	:	No data available
Boiling point/boiling range	:	110-427°C (230-801°F)
Vapor pressure	:	1.00 MMHG at 25°C (77°F)
Relative density	:	No data available
Density	:	0.9529 g/cm3
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	6.06 cSt at 40°C (104°F)
Relative vapor density	:	1 (Air = 1.0)
Evaporation rate	:	< 1

SECTION 10: Stability and reactivity

Reactivity	:	Stable under recommended storage conditions.

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.

Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Hazardous decomposition products : Carbon oxides
Sulfur oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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Acute oral toxicity : Acute toxicity estimate: 2,640 mg/kg
Method: Calculation method

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Acute inhalation toxicity : Acute toxicity estimate: 3.63 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

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Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

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Skin irritation : Skin irritation

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Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

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Sensitization : Causes sensitization.
largely based on animal evidence.

Repeated dose toxicity

Light Cycle Oil : Species: Rat, males
Sex: males
Application Route: Dermal

	Dose: 0, 8, 25, 125, 500, 1250 mg/kg Exposure time: 90 day Number of exposures: 5 days/wk NOEL: 25 mg/kg Target Organs: Blood, Liver, Thymus Species: Rat, females Sex: females Application Route: Dermal Dose: 0, 8, 25, 125, 500, 1250 mg/kg Exposure time: 90 day Number of exposures: 5 days/wk NOEL: 125 mg/kg Target Organs: Blood, Liver, Thymus
tert-Dodecanethiol	Species: Rat, male Sex: male Application Route: Inhalation Dose: 0, 26, 98 ppm Exposure time: 4 wk Number of exposures: 6 h/d, 5 d/wk Lowest observable effect level: 26 ppm Method: OECD Test Guideline 412 Target Organs: Kidney, Liver

Species: Rat, female
Sex: female
Application Route: Inhalation
Dose: 0, 26, 98 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
NOEL: 26 ppm
Method: OECD Guideline 412
Target Organs: Liver, Kidney

Species: Dog, male and female
Sex: male and female
Application Route: Inhalation
Dose: 0, 25, 106 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
NOEL: 25 ppm
Lowest observable effect level: 109 ppm
Method: OECD Test Guideline 412
Target Organs: Liver

Species: Mouse, male and female
Sex: male and female
Application Route: Inhalation
Dose: 0, 25, 109 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
Lowest observable effect level: 25 ppm
Method: OECD Test Guideline 412
Target Organs: Liver

Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 50, 100, 200 mg/kg
Exposure time: 10 wk
Number of exposures: once daily
NOEL: 200 mg/kg
Method: OECD Guideline 422
Target Organs: Kidney, Liver

Species: Rat, female
Sex: female
Application Route: oral gavage
Dose: 50, 100, 200 mg/kg
Exposure time: 8 - 9 wk
Number of exposures: once daily
NOEL: 200 mg/kg
Method: OECD Guideline 422
Target Organs: Liver

Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 5, 25, 100 ppm
Exposure time: 13 wk
Number of exposures: 6h/d, 5d/wk
NOEL: 25 ppm
Method: OECD Test Guideline 413

	Species: Rat, female Sex: female Application Route: Inhalation Dose: 5, 25, 100 ppm Exposure time: 13 wk Number of exposures: 6h/d, 5d/wk NOEL: 25 ppm Method: OECD Test Guideline 413
Decant (clarified) Oils	Species: Rat, male and female Sex: male and female Application Route: Dermal Dose: 1.06, 10.6, 53, 106, 530 mg/kg Exposure time: 13 wk Number of exposures: 6h;5d/wk NOEL: 1.06 mg/kg Method: OPPTS 870.3250 Target Organs: Liver, Blood, Thymus Information given is based on data obtained from similar substances.

Genotoxicity in vitro

Light Cycle Oil	:	Test Type: Modified Ames test Result: positive Test Type: Mouse lymphoma assay Result: positive Test Type: Sister Chromatid Exchange Assay Result: negative
tert-Dodecanethiol		Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 476 Result: negative Test Type: Sister Chromatid Exchange Assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 479 Result: negative Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative
Decant (clarified) Oils		Test Type: Modified Ames test Result: positive

	Test Type: Mouse lymphoma assay Result: positive Test Type: Sister Chromatid Exchange Assay Result: positive Test Type: Unscheduled DNA synthesis assay Result: positive Test Type: Cell transformation assay Result: Ambiguous
Naphthalene	Test Type: Ames test Result: negative Test Type: Sister Chromatid Exchange Assay Result: negative Test Type: Unscheduled DNA synthesis assay Result: negative

Genotoxicity in vivo

Light Cycle Oil	:	Test Type: Cytogenetic assay Result: negative
tert-Dodecanethiol		Test Type: In vivo micronucleus test Species: Mouse Route of Application: Oral Dose: 1250, 2500, 5000 mg/kg/bw Method: Mutagenicity (micronucleus test) Result: negative Remarks: Information given is based on data obtained from similar substances.
Decant (clarified) Oils		Test Type: Sister Chromatid Exchange Assay Result: positive
Naphthalene		Test Type: Mouse micronucleus assay Result: negative

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Carcinogenicity	:	Method: Expected to be carcinogenic based on individual component data.

Reproductive toxicity

tert-Dodecanethiol	:	Species: Rat Sex: male Application Route: oral gavage Dose: 50, 100, 200 mg/kg/d Exposure time: 10 wk Number of exposures: Daily Method: OECD Guideline 422 NOAEL Parent: 200 mg/kg Animal testing did not show any effects on fertility.

Species: Rat
Sex: female
Application Route: oral gavage
Dose: 50, 100, 200 mg/kg/d
Exposure time: 8 - 9 wk
Number of exposures: Daily
Method: OECD Guideline 422
NOAEL Parent: 200 mg/kg
NOAEL F1: 100 mg/kg
Animal testing did not show any effects on fertility.
Reduced fetal weight.

Species: Rat
Sex: male
Application Route: oral gavage
Dose: 25, 75, 200 mg/kg/d
Exposure time: 18 wk
Number of exposures: Daily
Method: OECD Test Guideline 443
NOAEL Parent: 200 mg/kg
NOAEL F1: 200 mg/kg
NOAEL F2: 200 mg/kg
Animal testing did not show any effects on fertility.

Species: Rat
Sex: female
Application Route: oral gavage
Dose: 25, 75, 200 mg/kg/d
Exposure time: 16 - 18 wk
Number of exposures: Daily
Method: OECD Test Guideline 443
NOAEL Parent: 200 mg/kg
NOAEL F1: 200 mg/kg
NOAEL F2: 200 mg/kg
Animal testing did not show any effects on fertility.
Reduced fetal weight.

Developmental Toxicity

Light Cycle Oil : Species: Rat
Application Route: Dermal
Dose: 1, 50, 250 mg/kg/d
Number of exposures: once daily
Test period: GD 0-19
Method: OECD Guideline 414
NOAEL Teratogenicity: 1 mg/kg
NOAEL Maternal: 1 mg/kg

tert-Dodecanethiol Species: Rat
Application Route: Inhalation
Dose: 0, 22.7, 88.6 ppm
Number of exposures: 6 hrs/d
Test period: GD 6-19
Method: OECD Guideline 414
NOAEL Teratogenicity: >= 88.6 ppm
No adverse effects expected

	Species: Mouse Application Route: Inhalation Dose: 0, 22.7, 88.6 ppm Number of exposures: 6 hrs/d Test period: GD 6-19 Method: OECD Guideline 414 NOAEL Teratogenicity: >= 88.6 ppm No adverse effects expected Species: Rabbit Application Route: oral gavage Dose: 0, 50, 100, 200 mg/kg/d Number of exposures: Daily Test period: GD 6-28 Method: OECD Guideline 414 NOAEL Teratogenicity: 100 mg/kg NOAEL Maternal: 100 mg/kg Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses
Decant (clarified) Oils	Species: Rat Application Route: Dermal Dose: 0, 0.05, 1, 50, 250 mg/kg/bw/d Exposure time: 6h/d Number of exposures: daily Test period: GD 0-19 NOAEL Teratogenicity: 0.05 mg/kg NOAEL Maternal: 0.05 mg/kg Suspected of damaging fertility or the unborn child.
Naphthalene	Species: Rabbit Application Route: oral gavage Dose: 40, 200, 400 mg/kg Test period: 29 d, GD 6-18 NOAEL Teratogenicity: 400 mg/kg

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Aspiration toxicity : May be fatal if swallowed and enters airways.

CMR effects

Light Cycle Oil :	Carcinogenicity: Possible human carcinogen
tert-Dodecanethiol	Carcinogenicity: Not available Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Teratogenicity: Animal testing did not show any effects on fetal development. Reproductive toxicity: No toxicity to reproduction
Decant (clarified) Oils	Carcinogenicity: Possible human carcinogen Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.
Naphthalene	Carcinogenicity: Limited evidence of carcinogenicity in animal studies
Polynuclear Aromatics	Carcinogenicity: Human carcinogen.

Mutagenicity: In vivo tests showed mutagenic effects

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Further information : Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

Light Cycle Oil	: LL50: > 0.3 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203
tert-Dodecanethiol	LL50: > 100 mg/l Exposure time: 96 h Species: Danio rerio (Zebra Fish) static test Method: OECD Test Guideline 203 No toxicity at the limit of solubility.
Decant (clarified) Oils	LL50: 79 mg/l Exposure time: 96 h semi-static test Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.
Naphthalene	LC50: 3.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates

Light Cycle Oil	: EL50: 0.32 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Immobilization Method: OECD Test Guideline 202
tert-Dodecanethiol	EC50: > 0.056 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 202 No toxicity at the limit of solubility.
Decant (clarified) Oils	EL50: 0.22 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Naphthalene	LC50: 2.16 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)

Toxicity to algae

Light Cycle Oil	: EL50: 0.51 mg/l

Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition Method: OECD Test Guideline 201

Decant (clarified) Oils — EL50: 0.32 mg/l
Exposure time: 72 h
static test Method: OECD Test Guideline 201

Naphthalene — EC50: 2.96 mg/l
Exposure time: 48 h
Species: Selenastrum capricornutum (algae)

M-Factor

Distillates (petroleum), light catalytic cracked	:	M-Factor (Acute Aquat. Tox.)	1
		M-Factor (Chron. Aquat. Tox.)	1

M-Factor

Clarified oils (petroleum), catalytic cracked	:	M-Factor (Acute Aquat. Tox.)	1
		M-Factor (Chron. Aquat. Tox.)	1

Toxicity to bacteria

tert-Dodecanethiol : NOEC: 8.6 mg/l
Exposure time: 3 h
Growth rate
Respiration inhibition
Method: OECD Test Guideline 209

NOEC: > 10 mg/l
Exposure time: 3 h
Growth rate
Respiration inhibition
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

tert-Dodecanethiol : NOEC: 0.0108 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
semi-static test
Method: OECD Test Guideline 211
No toxicity at the limit of solubility.

Biodegradability : Taking into consideration the properties of several ingredients, the product is estimated not to be readily biodegradable according to OECD classification.

Elimination information (persistence and degradability)

Bioaccumulation

Light Cycle Oil : The product may be accumulated in organisms.

tert-Dodecanethiol	:	Species: Danio rerio (zebra fish) Exposure time: 15 d Bioconcentration factor (BCF): > 500 - < 1,950 Method: OECD Test Guideline 305 Biomagnification factor <1 The product may be accumulated in organisms.
Decant (clarified) Oils	:	The product may be accumulated in organisms.

Mobility

Light Cycle Oil	:	No data available
tert-Dodecanethiol	:	After release, adsorbs onto soil.
Decant (clarified) Oils	:	No data available

Results of PBT assessment

Light Cycle Oil	:	Non-classified PBT substance, Non-classified vPvB substance
tert-Dodecanethiol	:	Non-classified PBT substance, Non-classified vPvB substance
Decant (clarified) Oils	:	Non-classified PBT substance, Non-classified vPvB substance
Additional ecological information	:	Very toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard	:	Very toxic to aquatic life.
Long-term (chronic) aquatic hazard	:	Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1268, PETROLEUM PRODUCTS, N.O.S., COMBUSTIBLE LIQUID, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III, (> 61 °C c.c.), MARINE POLLUTANT, (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3334, AVIATION REGULATED LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III, (-)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
90,UN3082,ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information

Notification status

Europe REACH	:	Not in compliance with the inventory
Switzerland CH INV	:	Not in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AIIC	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered,

notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).

Philippines PICCS : Not in compliance with the inventory
Taiwan TCSI : On the inventory, or in compliance with the inventory
China IECSC : On the inventory, or in compliance with the inventory

Other regulations : Law on the Prevention and Control of Occupational Diseases

SECTION 16: Other information

Further information

Legacy SDS Number : CPC00568

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and

			Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate